

Weekly Report – week of July 4, 2011
Fabrication and Assembly of ERL hardware
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Cryogenics: The field instrumentation termination continues once this 5 cell cold test is completed and the I/O loops power supply can be powered down. Cross-over tie-in from the cryogenic transfer line from VTF to the 10 inch, 20 Torr return header was completed, welds inspected. Pressure testing and leak checking will be done next week.

Controls: Hardware installation of the communications equipment that will be used for remote control of the Kepco power supplies is nearing completion.

Instrumentation: The mechanical design of the two plunging YAG profile monitors located at the two dipoles in the zig-zag injection chicane has started. We will be using simulated beam size and trajectory information to ensure accuracy. Optics, illumination, drive method, and dipole chamber modification options are being discussed. A mock-up is planned for bench testing before final fabrication.

FPC conditioning: The ERL FPC are being tested, we have reached 68 kW in pulsed mode and will continue testing as permitted. We have installed water mats and resistance checks are done twice a day. We still need to understand the water flow rates for proper cooling at high power operations.

Photocathode: We have successfully deposited Antimony (Sb) and Cesium (Cs). The Potassium (K) arm still shows high levels of water. We are in the process of performing a high temperature bake. Additional research is being done to add pumping directly on the source arms.

Gun Cryomodule: The transport cart upgrade continues to make progress. Dry fitting of the many received parts is in progress.

PASS System: The installation and testing of the VTF PASS system is in final phases with certification to follow.

Mezzanine: An RFQ to raise the mezzanine two feet has been prepared. Review of 3 RFP's for the installation of a clean room under the mezzanine is in progress. A meeting will be scheduled to review the comments of the evaluation committee.

Large Grain Gun: Cavity continues to be processed at Jefferson Laboratory. An equipment problem at JLab has delayed completion of the processing. In addition, fabrication of key parts for the low-power coupler and the variable coupler assembly have been completed.

5-cell cavity/cryomodule: There was a successful cold test of the 5-cell cavity last week. The main goal was to commission the new digital low-level RF (LLRF) control

system. The commissioning went well: the system demonstrated that we can reach extremely good cavity field amplitude and phase stability. Analysis of the test results is in progress. After that we will begin planning the next cold test. The paperwork continues for the G-5 test safety review. The surveyors continue to verify locations of the faraday cups (beam dumps) for the G-5 test. Carpenters are securing G-5 support stands to the floor.

ERL injection line: Vacuum envelope is in preparation to final review, correction magnets are under design.

ERL Extraction line: Magnets are being fabricated; beam dump pressure vessel code compliance under evaluation, vacuum/instrumentation layout needs to be reviewed and finalized.